

Appendix table 2-63.

**International R&D expenditures and R&D as a percentage of GDP: 1981–98**

Year	United States	Japan <sup>a</sup>	Germany <sup>b</sup>	France	United Kingdom	Italy	Canada
Total R&D expenditures in billions of constant 1992 U.S. dollars <sup>c</sup>							
1981 .....	109.5	NA	23.4	16.6	17.3	6.9	5.3
1982 .....	115.2	36.9	24.2	17.7	NA	7.1	5.7
1983 .....	123.1	40.0	24.7	18.3	16.9	7.6	5.8
1984 .....	134.8	43.5	25.5	19.5	NA	8.3	6.3
1985 .....	146.1	48.3	28.3	20.3	18.4	9.6	6.9
1986 .....	149.3	49.0	29.1	20.6	19.3	9.9	7.2
1987 .....	152.0	52.5	31.3	21.5	19.7	10.7	7.2
1988 .....	155.5	56.6	32.4	22.5	20.3	11.4	7.4
1989 .....	158.2	62.0	33.7	23.9	20.9	12.0	7.6
1990 .....	162.4	67.3	34.1	25.4	21.3	12.8	8.0
1991 .....	165.3	68.8	36.6	25.7	19.6	12.4	8.1
1992 .....	165.2	69.2	36.8	26.4	20.6	12.3	8.3
1993 .....	161.2	67.4	35.5	25.8	20.7	11.2	8.8
1994 .....	160.7	66.4	35.5	25.2	20.7	10.8	9.1
1995 .....	170.4	73.6	36.6	25.7	20.1	10.7	9.7
1996 .....	179.4	77.9	36.4	25.4	20.4	11.0	9.9
1997 .....	189.4	80.9	37.6	25.0	20.3	11.9	10.3
1998 .....	201.6	NA	38.6	NA	NA	12.3	10.6
R&D expenditures as a percentage of GDP							
1981 .....	2.32	NA	2.43	1.97	2.37	0.88	1.25
1982 .....	2.49	2.22	2.52	2.06	NA	0.91	1.40
1983 .....	2.56	2.35	2.52	2.11	2.19	0.95	1.37
1984 .....	2.62	2.43	2.51	2.21	NA	1.01	1.41
1985 .....	2.74	2.58	2.72	2.25	2.23	1.13	1.45
1986 .....	2.72	2.55	2.73	2.23	2.25	1.13	1.49
1987 .....	2.69	2.62	2.88	2.27	2.19	1.19	1.44
1988 .....	2.65	2.66	2.86	2.28	2.14	1.22	1.39
1989 .....	2.61	2.77	2.87	2.33	2.15	1.24	1.39
1990 .....	2.65	2.85	2.75	2.41	2.18	1.30	1.47
1991 .....	2.72	2.82	2.61	2.41	2.11	1.24	1.53
1992 .....	2.65	2.76	2.48	2.42	2.13	1.20	1.54
1993 .....	2.52	2.68	2.42	2.45	2.15	1.14	1.60
1994 .....	2.43	2.63	2.32	2.38	2.11	1.06	1.60
1995 .....	2.52	2.77	2.31	2.34	2.02	1.01	1.58
1996 .....	2.57	2.83	2.30	2.32	1.95	1.02	1.60
1997 .....	2.60	2.92	2.31	2.23	1.87	1.08	1.60
1998 .....	2.67	NA	2.33	NA	NA	1.11	1.60

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 2-63.

**International R&D expenditures and R&D as a percentage of GDP: 1981–98**

Year	United States	Japan <sup>a</sup>	Germany <sup>b</sup>	France	United Kingdom	Italy	Canada
Total R&D expenditures in billions of constant 1990 units of national currency <sup>d</sup>							
1981 .....	102.5	NA	47.3	104.2	9.9	9,288.60	6.5
1982 .....	107.8	6,867.70	48.6	111.3	NA	9,619.30	7.0
1983 .....	115.2	7,428.90	49.5	114.9	9.6	10,246.30	7.1
1984 .....	126.1	7,982.30	50.7	121.5	NA	11,158.20	7.7
1985 .....	136.8	8,857.70	55.8	126.4	10.4	12,765.80	8.4
1986 .....	139.7	9,008.60	57.4	128.3	10.9	13,208.30	8.8
1987 .....	142.3	9,629.50	61.4	133.5	11.1	14,287.60	8.9
1988 .....	145.6	10,367.40	63.4	139.4	11.4	15,193.50	9.0
1989 .....	148.0	11,331.20	65.9	148.2	11.8	15,929.90	9.2
1990 .....	152.0	12,277.50	66.7	157.2	12.0	17,001.20	9.8
1991 .....	154.7	12,587.50	71.2	157.9	11.4	16,395.80	9.9
1992 .....	154.6	12,446.70	68.9	160.4	11.4	15,933.00	10.2
1993 .....	150.9	12,119.50	66.6	160.6	11.8	14,970.30	10.8
1994 .....	150.4	11,994.40	65.6	159.6	12.0	14,286.00	11.3
1995 .....	159.5	12,780.60	66.1	160.4	11.8	13,969.10	11.4
1996 .....	168.0	13,594.70	66.5	161.5	11.7	14,269.80	11.6
1997 .....	177.2	14,217.60	68.5	159.0	11.6	15,354.90	12.1
1998 .....	188.7	NA	70.8	NA	NA	15,912.50	12.5

NA = not available

<sup>a</sup>Due to changes in methodology, data on Japanese R&D in 1996 and later years may not be consistent with data in earlier years.<sup>b</sup>German data before 1991 are for West Germany only.<sup>c</sup>Conversions of foreign currencies to U.S. dollars are calculated with purchasing power parity exchange rates. Constant 1992 dollars are based on U.S. GDP implicit price deflators. (See appendix tables 2-1 and 2-2.)<sup>d</sup>Constant foreign currencies are based on deflation with each country's GDP implicit price deflator.SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 1998*, NSF 99-335, by Steven Payson (Arlington, VA: 1999); and Organization for Economic Co-operation and Development, Main Science and Technology Indicators database (Paris: April 1999).

See figures 2-27, 2-28, and 2-30 in Volume I.

Appendix table 2-64.

## International nondefense R&amp;D expenditures and R&amp;D as a percentage of GDP: 1981–98

Year	United States	Japan <sup>a</sup>	Germany <sup>b</sup>	France	United Kingdom	Italy	Canada
Total nondefense R&D expenditures in billions of constant 1992 U.S. dollars <sup>c</sup>							
1981 .....	81.7	NA	22.6	13.2	13.5	6.7	5.1
1982 .....	82.8	37.4	23.4	14.3	NA	7.0	5.5
1983 .....	86.5	40.3	23.8	15.1	13.0	7.4	5.6
1984 .....	94.1	43.3	24.6	16.1	NA	8.0	6.1
1985 .....	100.8	48.0	27.0	16.8	14.5	9.1	6.6
1986 .....	102.2	48.6	27.9	16.9	15.6	9.4	6.9
1987 .....	103.7	52.1	29.9	17.5	16.2	10.3	7.0
1988 .....	108.1	56.1	31.0	18.3	17.1	10.8	7.2
1989 .....	114.0	61.5	32.3	19.7	17.6	11.4	7.3
1990 .....	121.2	66.7	32.5	20.5	18.0	12.4	7.8
1991 .....	128.0	68.2	35.2	21.2	16.6	11.9	7.9
1992 .....	129.5	68.4	35.5	22.3	17.8	11.9	NA
1993 .....	126.4	66.6	34.4	22.0	17.9	10.7	8.6
1994 .....	128.6	65.6	34.4	21.8	18.0	10.3	NA
1995 .....	138.6	72.6	35.4	22.4	17.7	10.4	9.5
1996 .....	147.7	77.1	35.0	22.2	18.0	10.9	NA
1997 .....	157.2	NA	36.3	NA	17.9	11.7	10.1
1998 .....	169.4	NA	NA	NA	NA	NA	10.4
Nondefense R&D expenditures as a percentage of GDP							
1981 .....	1.73	NA	2.34	1.57	1.84	0.85	1.21
1982 .....	1.79	2.21	2.44	1.66	NA	0.89	1.35
1983 .....	1.80	2.34	2.43	1.74	1.69	0.93	1.32
1984 .....	1.83	2.41	2.42	1.82	NA	0.97	1.35
1985 .....	1.89	2.56	2.60	1.87	1.76	1.07	1.40
1986 .....	1.86	2.53	2.61	1.84	1.82	1.08	1.43
1987 .....	1.83	2.60	2.75	1.85	1.79	1.15	1.38
1988 .....	1.84	2.63	2.74	1.85	1.80	1.15	1.34
1989 .....	1.88	2.75	2.75	1.92	1.81	1.18	1.34
1990 .....	1.97	2.83	2.62	1.95	1.84	1.26	1.41
1991 .....	2.11	2.79	2.51	1.98	1.79	1.19	1.48
1992 .....	2.07	2.73	2.39	2.04	1.84	1.15	NA
1993 .....	1.98	2.65	2.34	2.10	1.86	1.09	1.56
1994 .....	1.95	2.60	2.25	2.05	1.84	1.01	NA
1995 .....	2.05	2.73	2.23	2.04	1.78	0.98	1.55
1996 .....	2.11	2.80	2.21	2.03	1.72	1.01	NA
1997 .....	2.16	NA	2.23	NA	1.65	1.07	1.57
1998 .....	2.24	NA	NA	NA	NA	NA	1.57

NA = not available

<sup>a</sup>Due to changes in methodology, data on Japanese R&D in 1996 and later years may not be consistent with data in earlier years.<sup>b</sup>German data before 1991 are for West Germany only.<sup>c</sup>Conversions of foreign currencies to U.S. dollars are calculated with purchasing power parity exchange rates. Constant 1992 dollars are based on U.S. GDP implicit price deflators. (See appendix tables 2-1 and 2-2.)SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 1998*, NSF 99-335, by Steven Payson (Arlington, VA: 1999); and Organisation for Economic Co-operation and Development, Main Science and Technology Indicators database (Paris: April 1999).

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